

CLAIMS

1. An external-rotor motor (20) that comprises
an external rotor (22) that comprises a rotor cup (24)
and a shaft (28), which shaft is mounted, with its proximal
end (26) facing toward the rotor cup (24), on the latter and
is provided, in the region of its distal end (34) facing away
from the rotor cup (24), with an enlargement (32);

a stator (90) on which a bearing support tube (70) is
provided;

rolling bearings (52, 60) which are arranged in the
bearing support tube (70) and serve to support the shaft (28)
of the external rotor (22) and of which a proximal rolling
bearing (52) is arranged closer to the rotor cup (24) than a
distal rolling bearing (60), the shaft (28) being implemented
displaceably in the axial direction in the inner rings (56,
64) of those rolling bearings (52, 60);

a retaining member (50), arranged between the rotor cup
(24) and proximal rolling bearing (52), said retaining member
serving to immobilize at least the proximal rolling bearing
(52) in its position in the bearing support tube (70) after
assembly; and

a spring member (48), effective between the proximal
rolling bearing (52) and the rotor cup (24), which pushes the
rotor cup (24) away from the proximal rolling bearing (52) in
order to push the enlargement (32) provided on the shaft (28)
in the direction toward the distal end of the distal rolling
bearing (60).

2. The motor according to claim 1,
wherein the rotor cup (24) comprises on its side facing
toward the proximal rolling bearing (52) a projection (38)
that is implemented for contact against the holding member
(50).

3. The motor according to claim 1 or 2,
wherein there is provided between the outer ring (54) of the proximal rolling bearing (52) and the outer ring (62) of the distal rolling bearing (60) a spacer (58) that defines a predetermined distance between the outer rings (54, 62) of the proximal rolling bearing (52) and the distal rolling bearing (60).

4. The motor according to any of the preceding claims,
wherein the enlargement (32) provided on the shaft (28) is implemented as a snap ring or the like that, in the assembled state, is in contact against the distal end of the inner ring (64) of the distal rolling bearing (60).

5. The motor according to any of the preceding claims,
wherein the spring member (48) pushes on the proximal end of the inner ring (56) of the proximal rolling bearing (52).

6. The motor according to any of the preceding claims,
wherein the bearing support tube (70) is closed on its side facing away from the rotor cup (24).

7. A method for installing the rotor (22) of an external-rotor motor (20) on a bearing support tube (70) and in a predetermined axial position relative to the latter,

which rotor (22) comprises a rotor cup (24) and a rotor shaft (28),

which method comprises the following steps:

a) beginning at the rotor cup (24), a compression spring (48), a retaining member (50), and a bearing arrangement having a plurality of rolling bearings are mounted on the rotor shaft (28), the inner rings (56, 64) of the rolling bearings (52, 60) being slidably displaceable on the rotor shaft (28);

b) the elements arranged on the rotor shaft (28) are pressed into the bearing support tube (70) by means of a pressing-in force (K), the compression spring (48) being compressed and the rotor cup (24) pressing the retaining member (50) into the bearing support tube (70);

c) the pressing-in force (K) is removed, and the rotor shaft (28) is displaced by means of the compression spring (48) in the inner rings of the rolling bearings (52, 60) in such a way that the rotor (22) assumes the predetermined axial position relative to the bearing support tube (70).

8. The method according to claim 7,
wherein there is provided on the rotor cup (24) an axial projection (38) that, after compression of the compression spring (48), pushes on the retaining member (50) at a point that lies in the region of the outer ring (54) of a rolling bearing (52), so as thereby to transfer the pressing-in force (K) to that outer ring (54).